

BUILDING WITH CONCRETE MASONRY

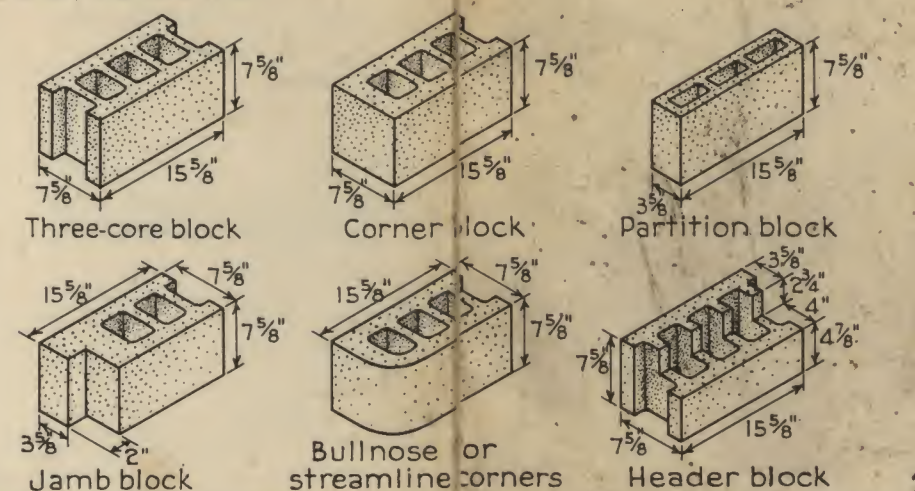
These drawings are typical designs and should not be used as working drawings. They are intended to be helpful in the preparation of complete plans which should be adapted to local conditions and should conform to legal requirements. Working drawings should be prepared and approved by a qualified engineer or architect.

PORTLAND CEMENT ASSOCIATION
33 West Grand Avenue,
Chicago 10, Illinois

The activities of the Portland Cement Association, a national organization, are limited to scientific research, the development of new or improved products and methods, technical service, promotion and educational effort (including safety work), and are primarily designed to improve and extend the uses of portland cement and concrete. The manifold program of the Association and its varied services to cement users are made possible by the financial support of over 60 member companies in the United States and Canada, engaged in the manufacture and sale of a very large proportion of all portland cement used in these two countries. A current list of member companies will be furnished on request.

COMMON SHAPES AND SIZES OF CONCRETE MASONRY UNITS

Units are also made in half lengths and widths of $5\frac{5}{8}"$, $9\frac{5}{8}"$ and $11\frac{5}{8}"$

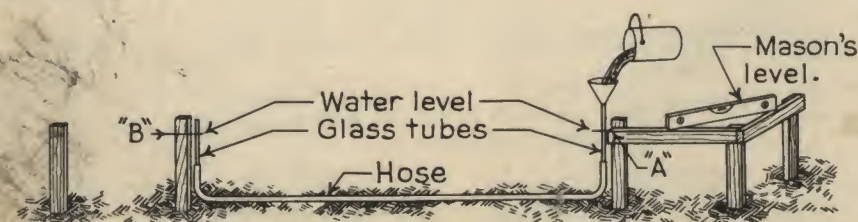


LAY OUT BUILDING FIRST

1. Put up batter boards at corners. Carpenter's square may be used in laying out approximate corners.
 2. Outside edges of building. Plumb line.
 3. Make length of wall to fit concrete masonry unit. 1 block and 1 vertical joint equal 16".
- When length A equals length B the corners are square when opposite sides are equal.

SET BATTER BOARDS AT SAME ELEVATION -

A hose with glass tubes in each end may be used to do this.



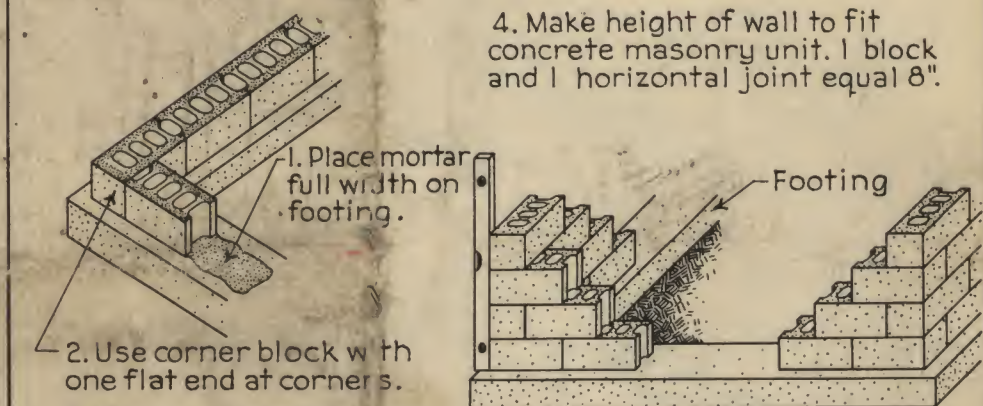
1. Set batter boards at one corner as at right.
2. Place hose as shown.
3. Fill with water until water level is at top of batter board "A".
4. Mark water level at opposite end "B" and set board to mark.

ADEQUATE FOOTINGS ESSENTIAL



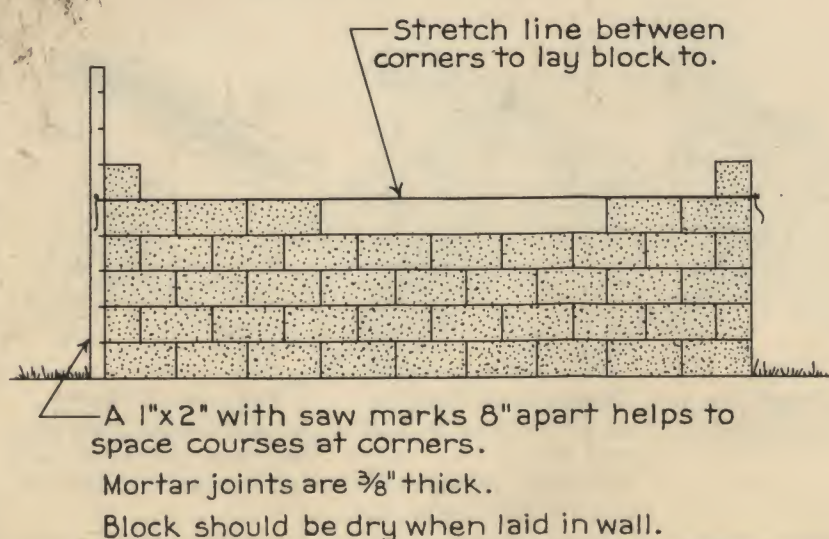
1. Dig trench down to firm soil below frost.
 2. Make bottom of trench flat and level.
 3. Forms to make footings proper size.
 4. Fill with 1:2 $\frac{3}{4}$:4 concrete.
 5. Remove form after concrete hardens.
 6. Sweep off top of footing before laying concrete masonry.
- W = Twice masonry wall thickness.

START LAYING BLOCK AT CORNERS



1. Place mortar full width on footing.
2. Use corner block with one flat end at corners.
3. Mortar placed on face shells only for succeeding courses.
4. Make height of wall to fit concrete masonry unit. 1 block and 1 horizontal joint equal 8".
5. Build corners up using mason's level to keep plumb and straight.

BUILD WALL BETWEEN CORNERS



MORTAR MIXES

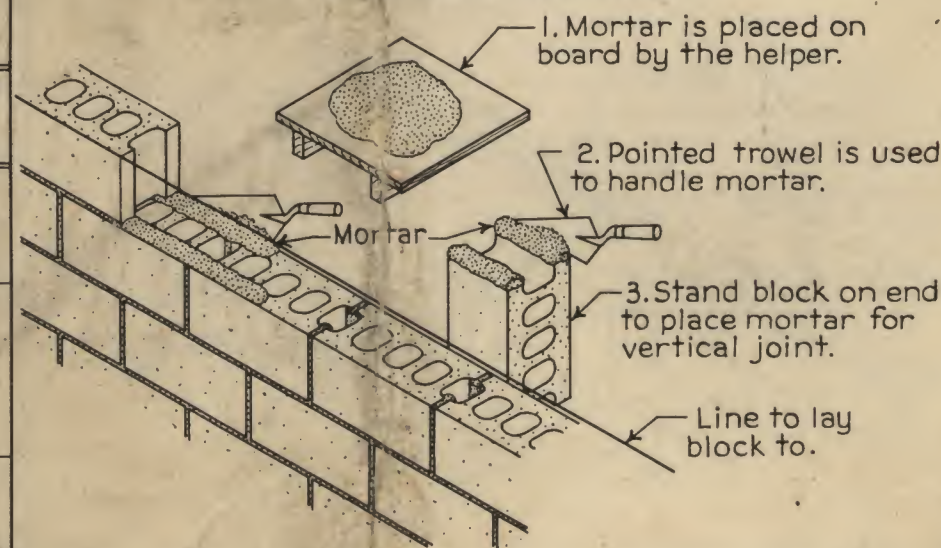
Proportions by volume

TYPE OF WALL	CEMENT	HYDRATED LIME OR LIME PUTTY	MORTAR SAND IN DAMP, LOOSE CONDITION
Ordinary	1-Masonry cement*	0	2 to 3
	1-Portland cement	1 to 1 $\frac{1}{4}$	4 to 6
Subject to extremely heavy loads, violent winds, earthquakes or severe frost action. Isolated piers.	1-Masonry cement* plus 1-Portland cement	0	4 to 6
	1-Portland cement	0 to $\frac{1}{4}$	2 to 3

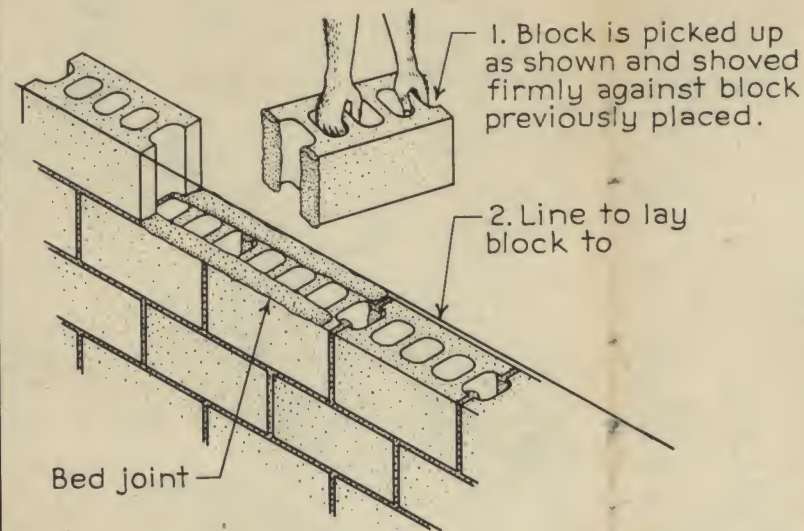
* Federal specifications SS-C-181 b, Type II

Add enough clean water to make a workable mix.

APPLYING MORTAR

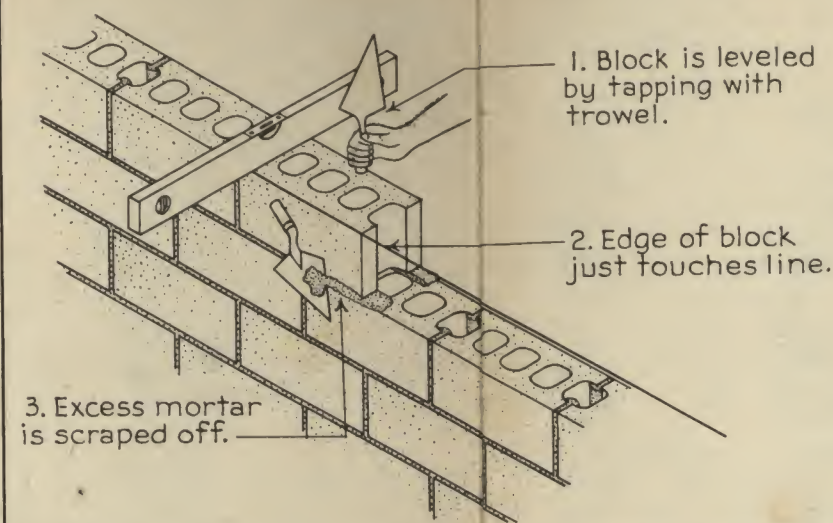


PLACING BLOCK



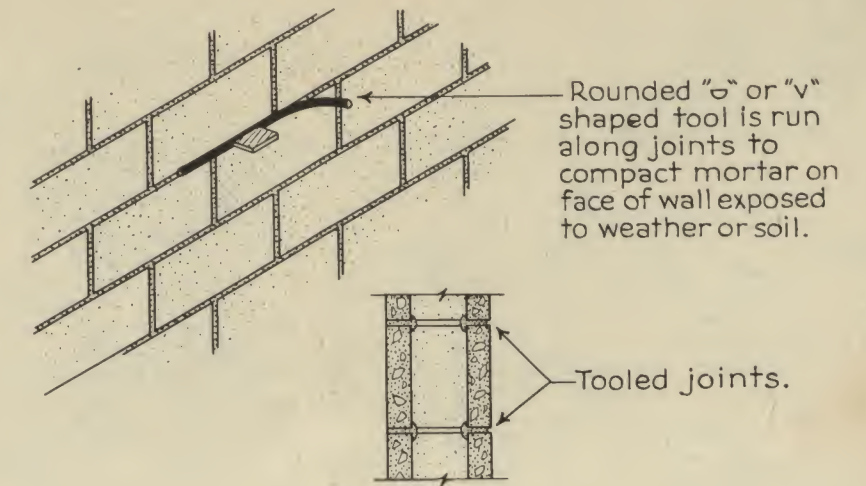
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SETTING BLOCK



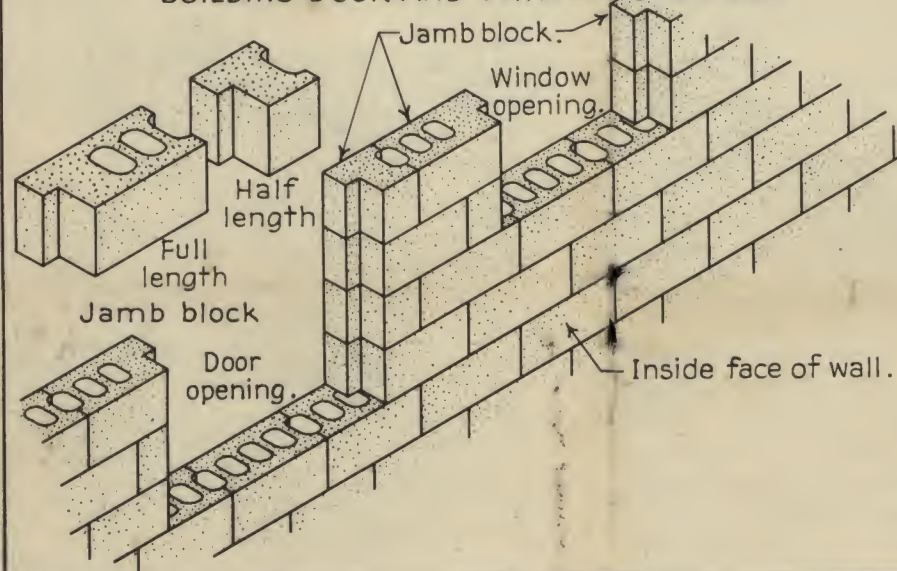
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JOINTS ARE TOOLED AFTER MORTAR HAS BECOME QUITE STIFF



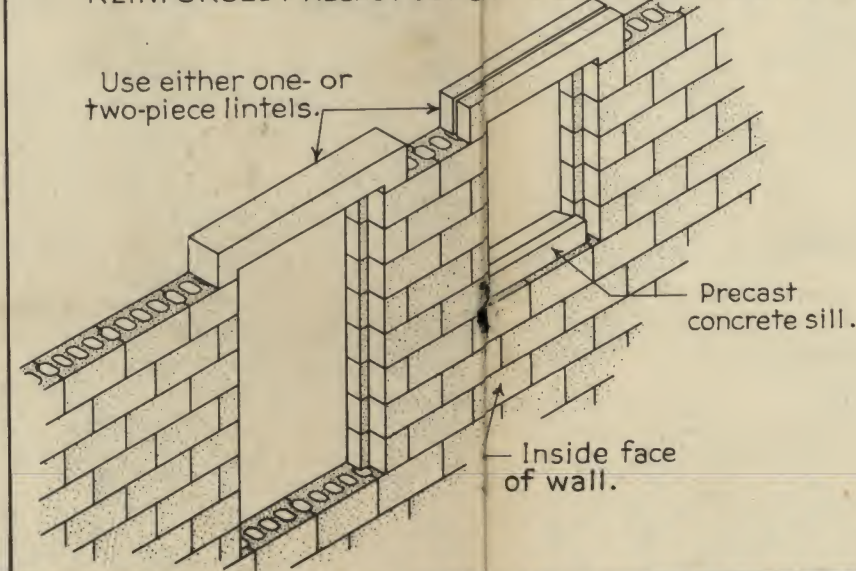
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BUILDING DOOR AND WINDOW OPENINGS



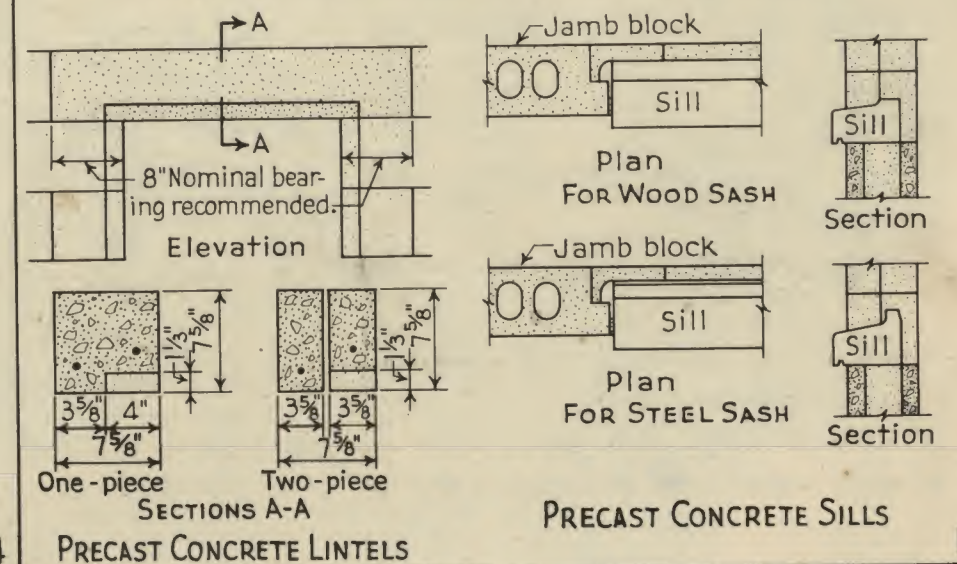
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REINFORCED PRECAST CONCRETE LINTELS OVER OPENINGS



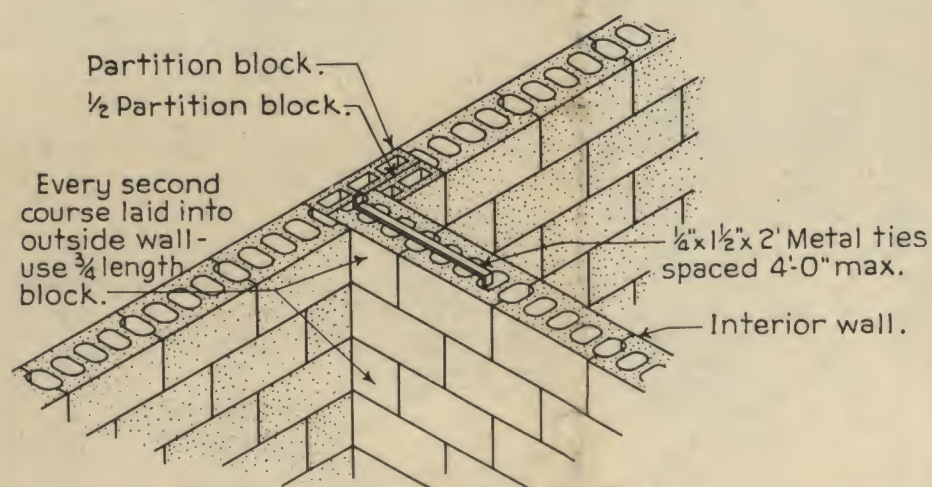
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DETAILS OF PRECAST CONCRETE LINTELS AND SILLS



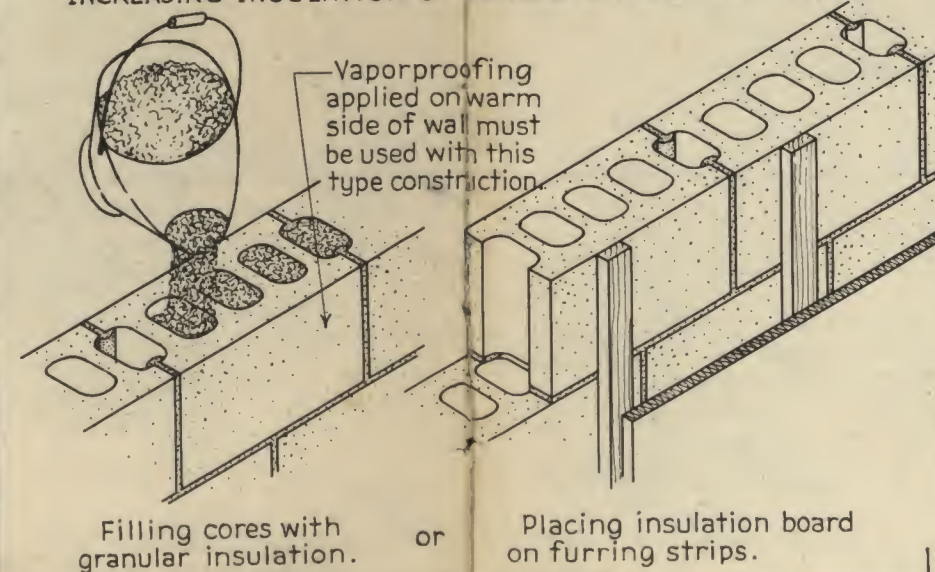
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BONDING OF MASONRY WALLS



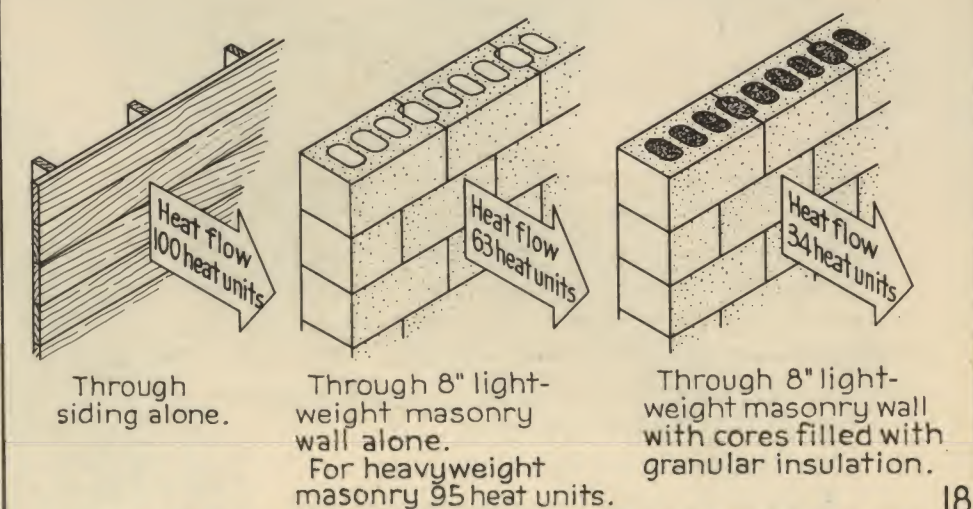
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INCREASING INSULATION OF CONCRETE MASONRY WALLS



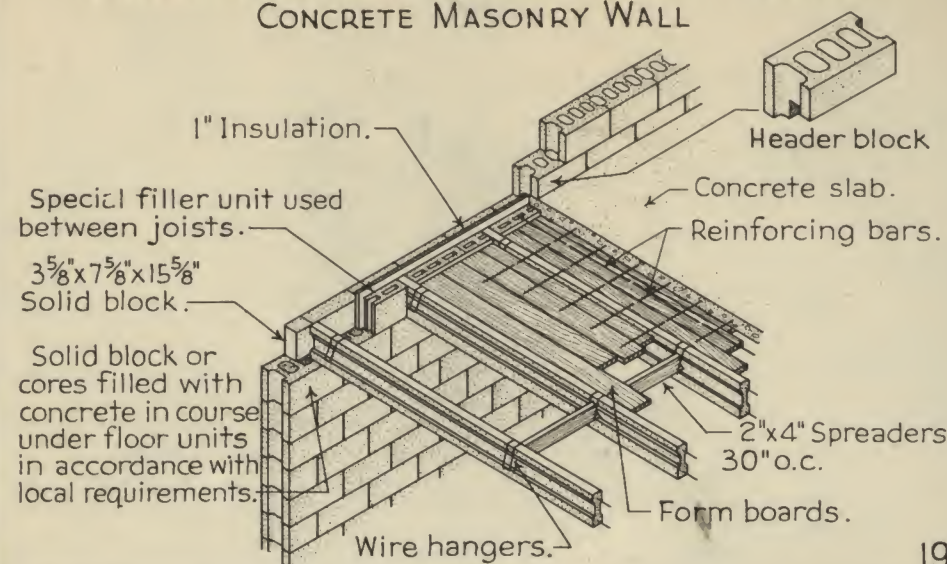
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RELATIVE HEAT LOSS OF THREE TYPES OF WALLS



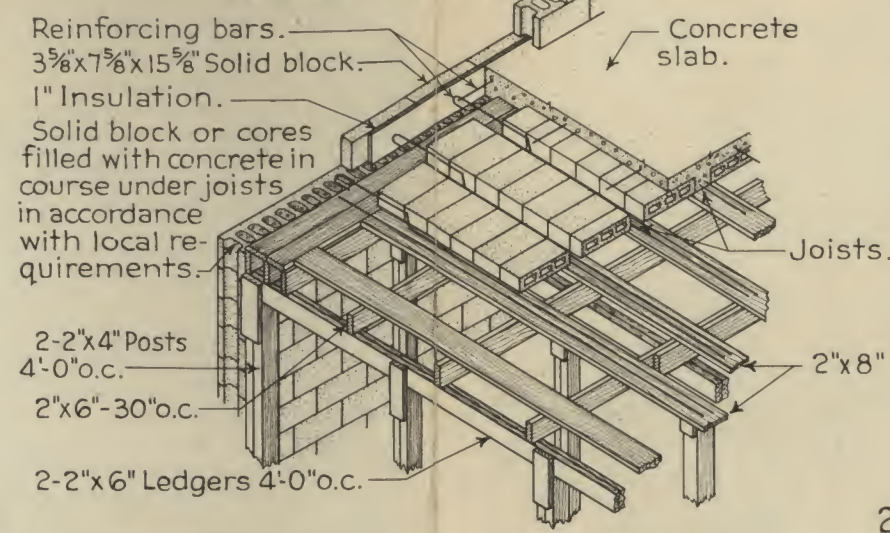
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SUPPORTING PRECAST CONCRETE JOIST FLOOR ON CONCRETE MASONRY WALL



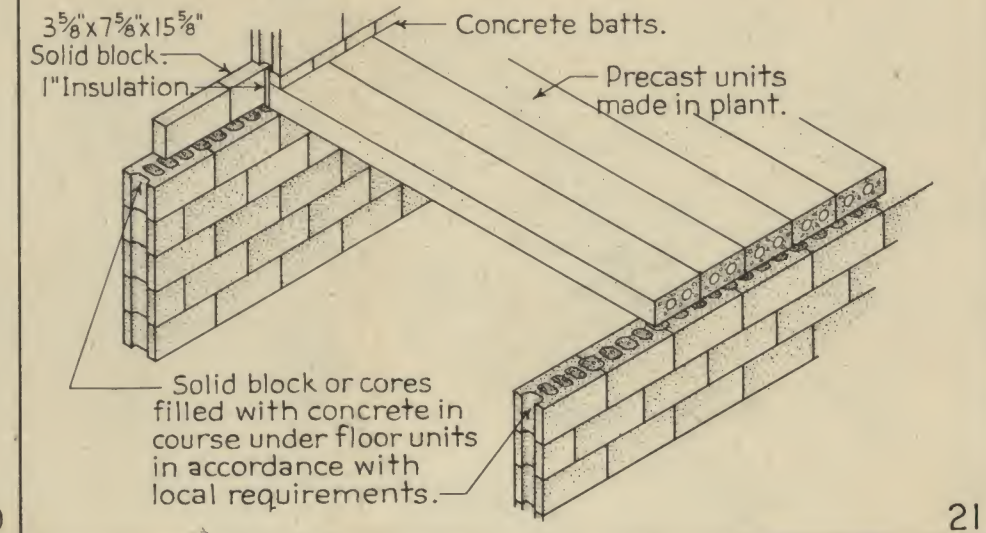
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SUPPORTING CONCRETE BLOCK JOIST FLOOR ON CONCRETE MASONRY WALL



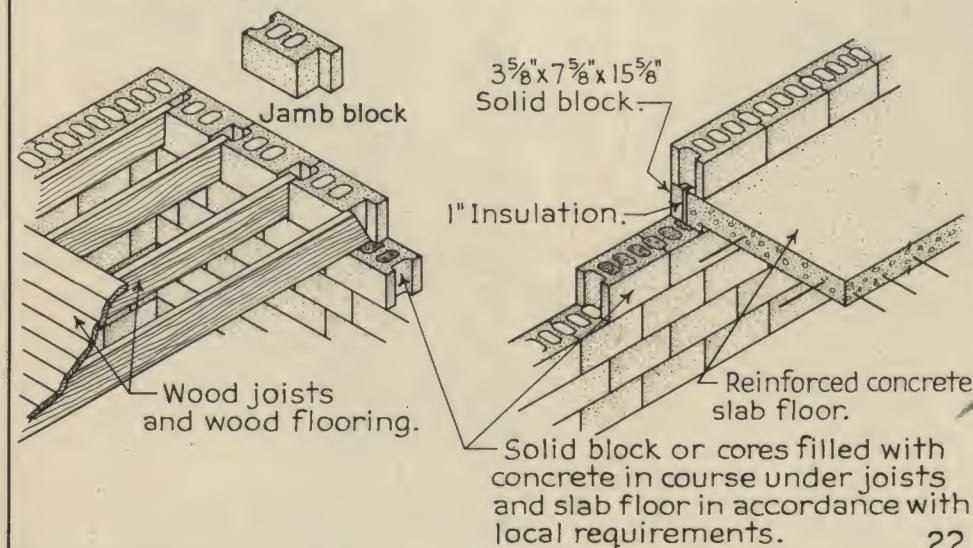
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SUPPORTING CORED CONCRETE FLOOR UNITS ON CONCRETE MASONRY WALL



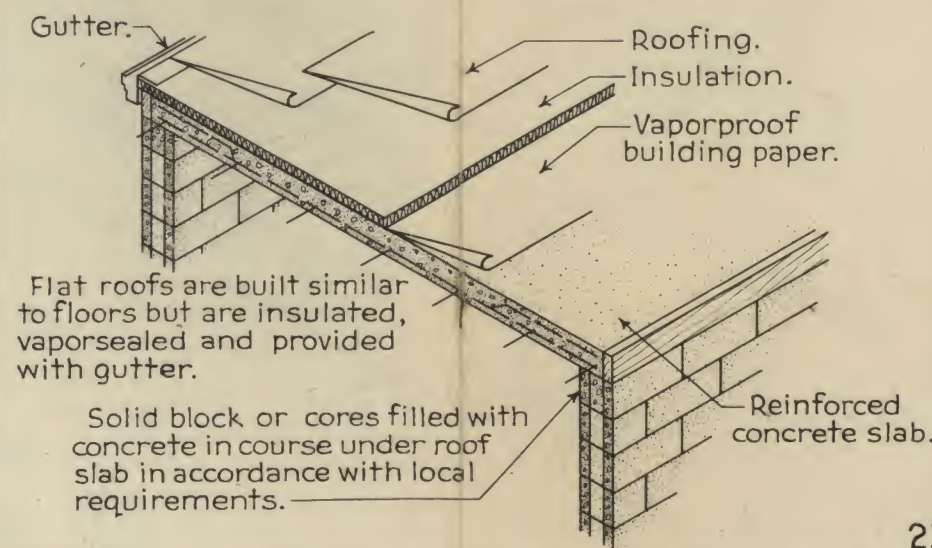
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WOOD OR CONCRETE FLOORS ON CONCRETE MASONRY WALLS



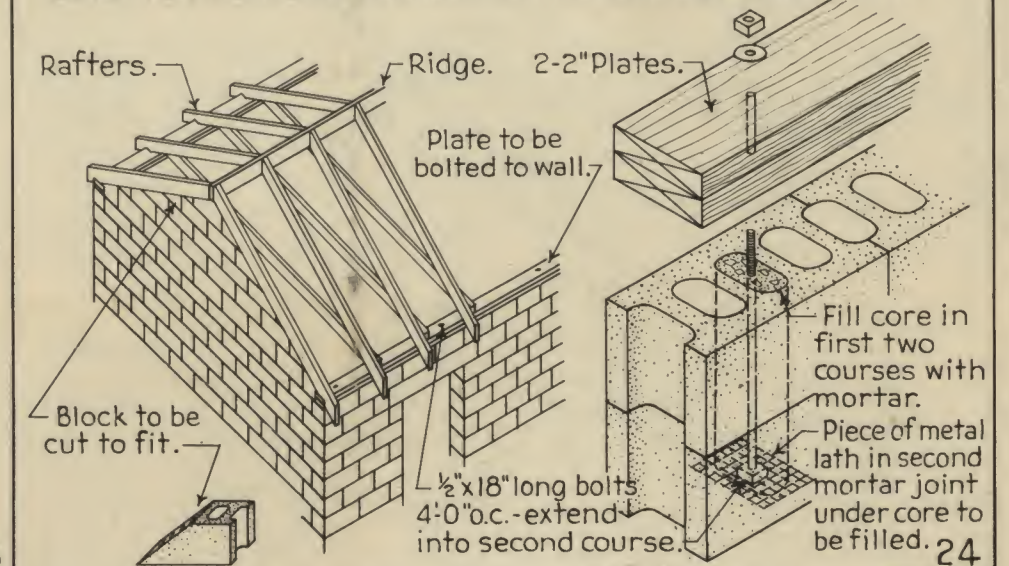
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FLAT ROOFS ON CONCRETE MASONRY WALLS



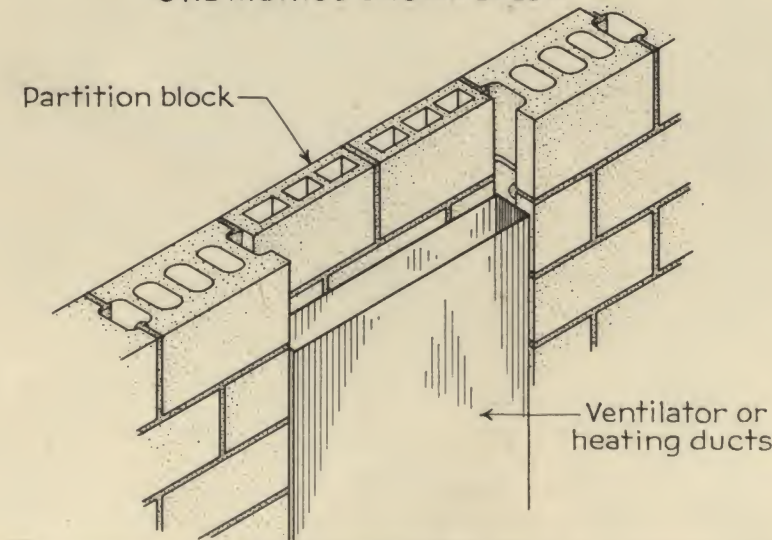
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CONSTRUCTION OF WOOD ROOF ON CONCRETE MASONRY WALL



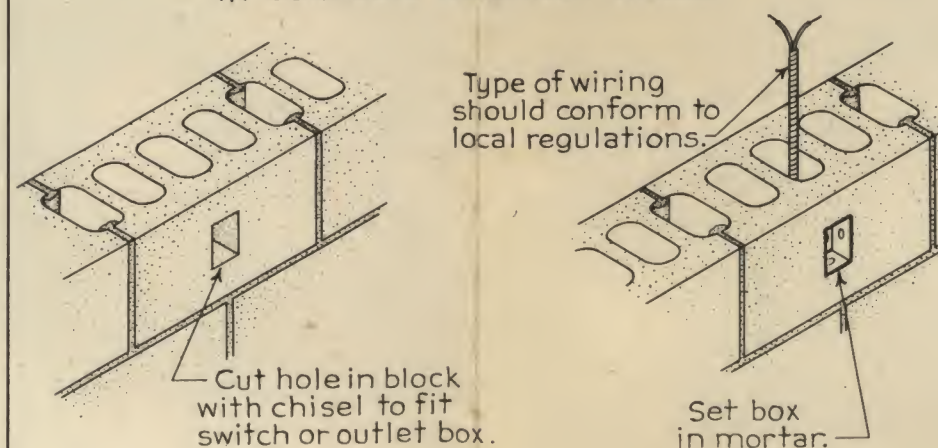
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VENTILATION OR HEATING DUCTS MAY BE BUILT INTO WALL ONE METHOD SHOWN BELOW



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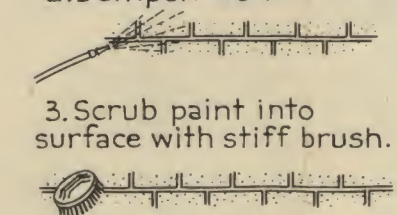
HOW TO INSTALL SWITCH AND OUTLET BOXES IN CONCRETE MASONRY WALLS



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MASONRY WALLS MADE WEATHER-RESISTANT WITH PORTLAND CEMENT PAINT

1. Mix paint according to manufacturer's instructions.
2. Dampen wall.



3. Scrub paint into surface with stiff brush.

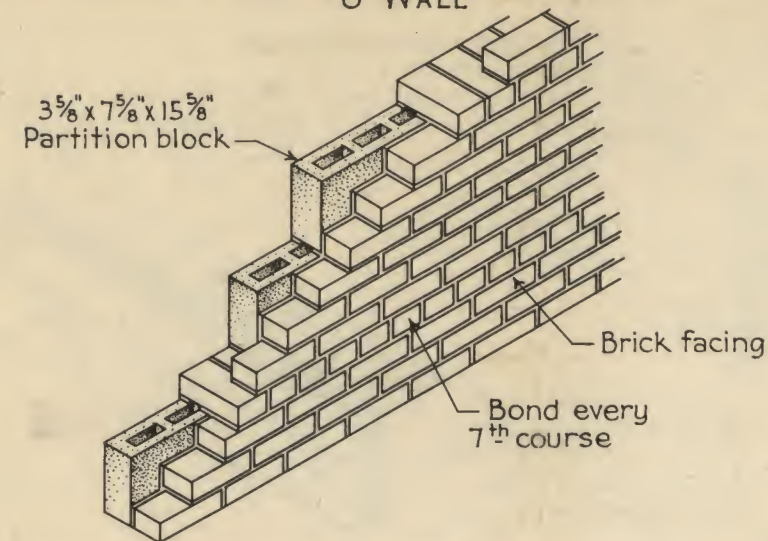
4. As soon as paint will not wash off keep wall wet for 24 hour moist curing.



5. Second coat applied and cured in same manner.

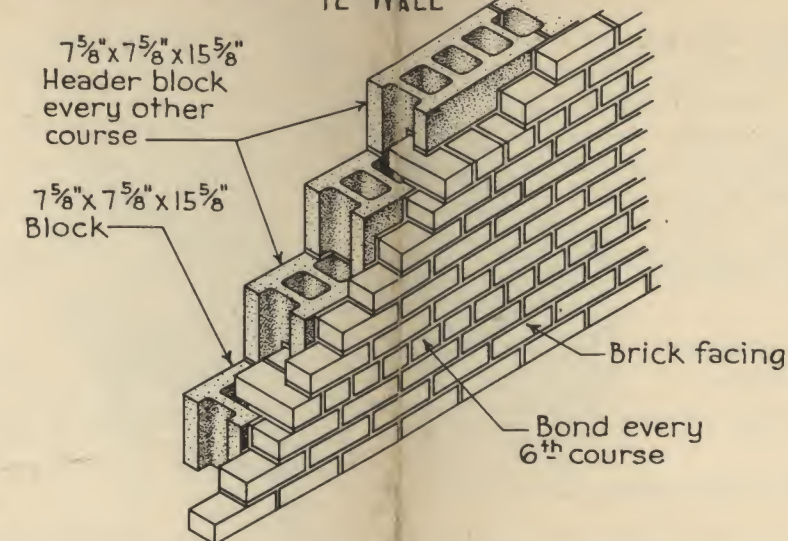
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BONDING BRICK FACING TO CONCRETE MASONRY WALL
8" WALL



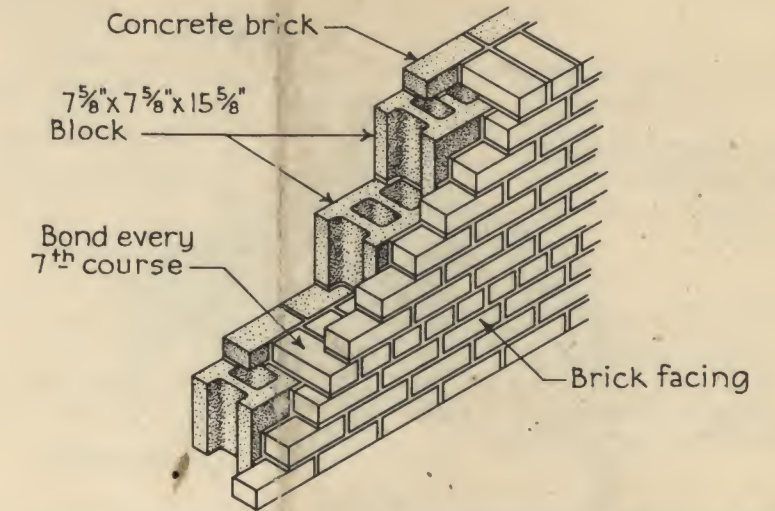
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6TH COURSE BONDING BRICK FACING TO CONCRETE MASONRY WALL
12" WALL



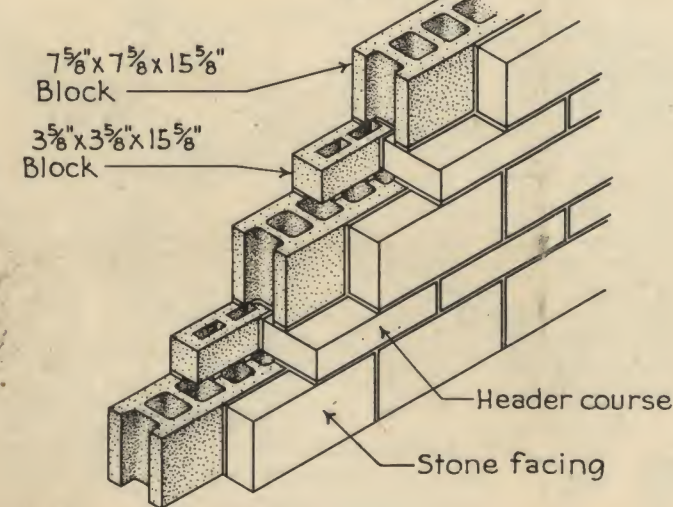
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7TH COURSE BONDING BRICK FACING TO CONCRETE MASONRY WALL
12" WALL



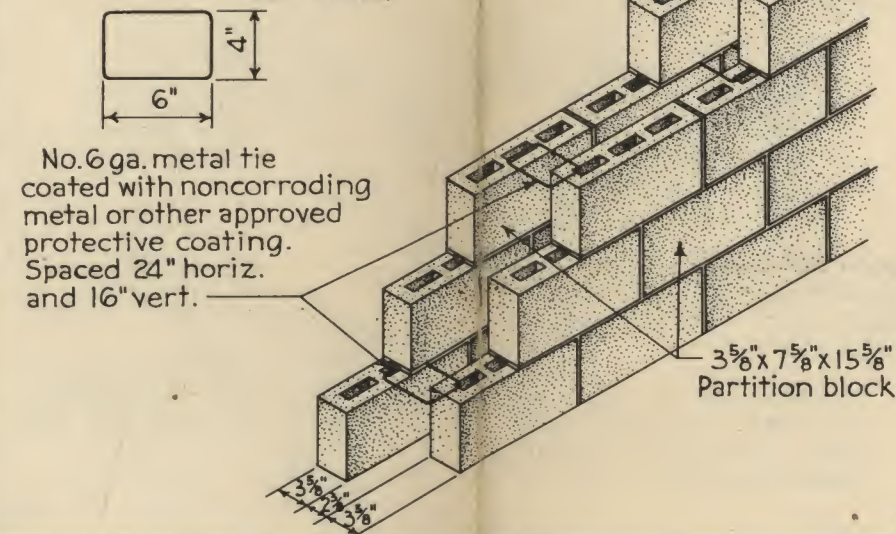
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ONE METHOD OF BONDING STONE FACING TO CONCRETE MASONRY WALL
12" WALL



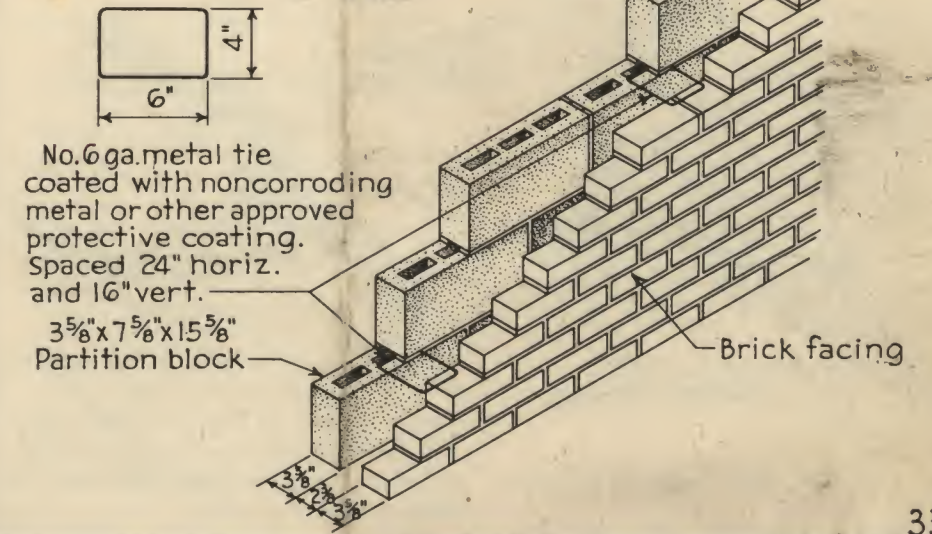
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CAVITY WALL OF CONCRETE MASONRY
10" WALL



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CAVITY WALL OF BRICK AND CONCRETE MASONRY
10" WALL



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